

Perspectives in Expert Testimony

Welcome to the **Perspectives in Expert Testimony** course. This online course addresses expert testimony with an open mind towards broadening the perspective of how to be a scientist in the legal arena as well as improving expert witness capabilities on the stand. Inevitably, there is a clash of professional cultures and this course is intended to provide a broader perspective of what the varying viewpoints are. Part of this course will refer to "strong narratives" which will provide insight into building better direct testimony.

This is a printable version of the course. While this document does not include some of the information and experience that the course will provide you, (quizzes, interactive discussions, some articles and visual representations) it is a good resource for you to make notes and have as a reference after you have completed the course.

This course will also address aspects of handling cross examination. The more prepared a person is as a direct witness, the less he/she has to fear on cross examination. Cross examination tends to be more rhetoric than a logical attack. Attorneys use words as their swords and grammar as their shields and as long as the expert understands how they use those words and grammar to their advantage, there is nothing to fear. The course will also include ways of systematically improving expert witness testimony and ethics.

Unit 1- Overview of Expert Testimony & being an Expert Witness

Objectives

At the end of this unit, the student will be able to:

- Describe the differences between an Expert and Lay Witness
- Discuss the difference between civil and criminal cases
- List the five variables of credibility of the expert witness
- Define discovery and depositions

Introduction

Professions have cultures. Friction and conflict may occur where those professions interact, due to differences in outlooks, goals, and methods. For the expert witness, who is often a scientist, the culture of the legal profession can seem to be a wild mix of irrationality and half-truths. To an attorney, the professional culture of science may appear to be a frustrating series of obstacles and stubbornness.

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No matter the experience level of the expert, there is a learning benefit to testimony regardless of whether it goes well or poorly. There may always be one question that makes the expert consider a topic differently or change their perspective on a familiar issue. For example, a hair analyst may be asked, "Isn't it true that you cannot be certain the hair at the crime scene positively came from the defendant?" "But how many other people could the crime scene hair have come from?" "Alternatively, how many people could be excluded?" Forensic hair examination is not a predictive analysis and those two questions are of a very different type. The first one is commonly asked and the second one is not as common. Taking the time to answer the second question should make a person a better hair examiner and a better expert witness.

The two most important qualities an expert should have during testimony are consciousness and patience (to be awake and patient). It is not important to care how many questions are left. There

is no greater danger than when an expert thinks, "This is going to be the last question." When this occurs, the mind is ill-prepared: it has relaxed thinking about lunch and all of a sudden being jolted back to reality by one more question that you did not hear. Much like the military, forensic science has long periods of tedium, then short periods of fear, which occurs when you get a subpoena to go into the courtroom. Testimony, in terms of hours, is a fraction of a forensic scientist's career and yet those are some of the most galvanizing moments that people remember. Arguably, testimony is the second most important thing a scientist will do; obviously, the quality of the case work and reports is number one.

Expert vs. Lay Witness

The Federal Rule of Evidence 702 defines *Testimony by Experts*:

If scientific, technical, or other specialized knowledge will assist the trier of fact [judge or jury] to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill experience, training or education, may testify thereto in the form of an opinion or otherwise, if (1) the testimony is based upon sufficient facts or data, (2) the testimony is the product of reliable principles and methods, and (3) the witness has applied the principles and methods reliably to the facts of the case.

The Federal Rule of Evidence 701 defines *Opinion Testimony by Lay Witness*:

If the witness is not testifying as an expert, the witness testimony in the form of opinions or inferences is limited to those opinions or inferences which are (a) rationally based on the perception of the witness, and (b) helpful to a clear understanding of the witness' testimony or the determination of a fact in issue, and (c) not based on scientific, technical, or other specialized knowledge within the scope of Rule 702.

Simply put, an expert witness is someone who knows more about a topic or subject than the average person. When a forensic scientist testifies in a court of law, they are considered an expert witness. But before testifying before a jury, an expert witness must be qualified by the court, based on expertise, accomplishments, and training directly related to the subject matter of the case. The forensic scientist can be brought to court by either the prosecution or defense as an expert to help the trier-of-fact (judge or jury) in reaching the verdict. Expert witnesses can bring credibility to a legal case, or can be used to cast doubt on evidence or facts presented by the opposing attorney.

There are three basic types of forensic expert witnesses:

- **Consulting:** The expert is hired by an attorney to evaluate the evidence and run the tests and experiments necessary. They are usually hired by the defense in criminal cases and the plaintiff in civil cases. These experts usually are retired forensic scientists or scientists that work for private laboratories. For example, the defense may hire a firearms expert as a consultant on a shooting case. This expert would run tests and/ or experiments to see if the shooting occurred the way the defendant claims. This consulting expert does not have to testify if the tests are not favorable due to the attorney-work privilege.

- **In-house:** The expert is a specialist that works for individual companies and deals with mostly product liability cases. In civil cases, they are the defense experts. These experts can be retired professionals. For example, an automotive company may have a mechanical engineer on staff that would be an in-house expert on how seatbelts work and function in the automobile.
- **Trial:** The expert who attorneys use to present the evidence in court. These experts are usually the ones that work for public laboratories and give testimony for the prosecution. They can also be experts that work for themselves or a private laboratory and give testimony for the prosecution or defense. For example, the latent print examiner at a state laboratory is a trial expert for the prosecution during a trial involving fingerprint evidence.

The Role of the Witness

The forensic expert has two important duties that he or she must perform:

1. Scientific investigations (either in the field or laboratory) in order to reach a conclusion about the evidence
2. Communication of those conclusions or results to a judge or jury through testimony and/or written report

These duties take place in very different environments: the first at the laboratory or crime scene and the second in the courtroom. Forensic expert testimony is unique; no other scientific discipline has this legal requirement.

The courtroom is a foreign locale to many scientists. The rules that the scientist follows on a day-to-day basis rarely apply to the courtroom. Attorneys' rules are always used in their "home field," i.e. the courtroom. This difference can cause friction between attorneys and scientists which results from two conflicting cultures (Prichard 2002). When the attorney asks the expert questions, it is peer-to-peer. The expert's testimony needs to be peer-to-layman, not peer-to-peer and he or she must adjust his or her speech, vocabulary, and thoughts appropriately. This is a requirement of the expert witness when instructing the trier of fact.

Hierarchy of Judicial Courts System in U.S.

The U.S. judiciary is a hierarchical system of trial and appellate courts at both the state and federal levels. In general, a lawsuit is originally filed with a trial court that hears the suit and determines its merits. Parties who disagree with a final judgment have the right to appeal the decision. They do so by asking an appellate court to review the decision of a trial court.

The structure of state court systems varies by state, but four levels generally can be identified:

1. Minor courts: handle the least serious cases. For example, municipal courts handle city ordinance violations, such as speeding tickets and parking violations.

2. Major trial courts: deals with cases that involve state constitutional issues, state statutes, and common law. For example, felony cases, such as murder or rape, would be handled in a major trial court. Be aware that trial courts are called by different names in different states e.g. in Pennsylvania they are called courts of common pleas.
3. Intermediate appellate courts: review cases that have been decided by trial courts. They do not hear new evidence; they decide whether the lower court (the trial court) correctly applied the law in the case. They are called courts of appeals.
4. State supreme courts: review cases that deal with state law. The decision of the court is final since the state supreme court is the ultimate arbiter of state laws and the state constitution. Supreme courts are called by various names depending on the state. For example, West Virginia calls its state supreme court the Supreme Court of Appeals.

Federal cases, including civil and criminal, are handled by federal district courts. There are 94 district courts, with at least one in each state, as well as a district court for the District of Columbia, Guam, the Northern Mariana Islands, Puerto Rico, and the Virgin Islands. The number of judgeships appointed to each district is laid out in Title 28, Section 133 of the U.S. Code, which is a compilation of the permanent laws of the United States.

The 94 districts are divided into 12 regional circuits (<http://www.uscourts.gov/courtlinks/>). Each of these circuits has a U.S. court of appeals, also called a circuit court. Each federal appellate court has jurisdiction over a certain geographic area, and may hear appeals only from federal district courts within that jurisdiction. The Court of Appeals for the Federal Circuit, however, has nationwide jurisdiction to handle certain kinds of cases, including patent cases and those that involve trade with other countries.

The Supreme Court is the nation's highest appellate court. Once the Court reviews a case and renders a final judgment, further appeals cannot be made. The nine justices who sit on the Supreme Court review cases that begin at either the federal or state level. These cases usually focus on important issues involving the U.S. Constitution and federal law.

Not all lawsuits begin in an ordinary court. Both the state and federal governments have established special courts that are designated to hear specific types of cases. For example, at the federal level, the U.S. Court of International Trade handles cases involving foreign business dealings, and the U.S. Tax Court handles disputes between taxpayers and the Internal Revenue Service (IRS). Examples at the state level include special courts that hear cases involving juveniles (i.e., juvenile court) or cases involving domestic issues (i.e., family courts). Specialized courts have also been created to hear appeals. For example, the Court of Military Appeals was established in 1950 to review court-martial decisions.

For more information on the Judiciary Hierarchy see: [Judiciary - Hierarchy](http://law.jrank.org/pages/7894/Judiciary-Hierarchy.html#ixzz0uX6FpvAP)
<http://law.jrank.org/pages/7894/Judiciary-Hierarchy.html#ixzz0uX6FpvAP>

Civil vs. Criminal Cases

Civil cases usually involve private disputes between organizations or individuals. A civil case begins when the plaintiff (a person or entity) claims that the defendant (another person or entity) failed to carry out a legal duty owed to the plaintiff. The plaintiff usually asks the court to tell the defendant to fulfill the duty or make compensation for the harm done, or both. Civil cases can also be heard in federal court if the plaintiff feels that his/her constitutional rights or federal statutes were violated.

Criminal cases are when a person is accused of a crime and charged in a formal accusation called an indictment (for felonies and serious crimes) or information (for misdemeanors). In criminal cases, the United States government will prosecute the case on behalf of the people. If it is a federal crime, it is prosecuted through the United States Attorney's Office. If it is a state crime, it is prosecuted through the state's attorney's office. Unlike civil cases, the victim is not responsible to bring forth a criminal case.

Credibility

Credibility is the "believability of a statement, action, or source, and the propensity of the observer to believe that statement" (Feder and Houck 2008). Competence and trustworthiness are two important keys in credibility. The expert witness must be professionally competent and have done a thorough job of analysis, investigation, and reporting. The jury must be able to trust the expert and his/her work. Plus, the court must have deemed the expert as credible. A mistake that often occurs is the expert assumes that the jury will trust him/her just because he/she is an expert (Feder and Houck 2008). For an expert witness, credibility is everything. The expert needs to "sincerely believe in the validity of his/her own opinion" and take the time to show why it is correct and why it should be accepted (Lubet and Boals 2009).

To become a credible expert witness, he or she needs to be a good teacher. A "good teacher" makes sure he or she speaks in the "students'" language. The teacher or expert witness should be concerned with understanding and not just presenting the information. A "great teacher" ensures that the students (or triers-of-fact) are following him/her in every step of the presentation, which makes the information accessible and more credible. And credible information is the most likely to be believed and accepted (Lubet and Boals 2009).

In Lubet's "Expert Testimony," he lists components of credibility as the following:

- coherent overview
- clear narrative
- harmonization
- comprehensiveness
- rapport
- command of information

- fluency and pace
- appearance and demeanor

The expert needs to have a viable, coherent theory of the case, which is the framework for the expert's testimony. Without a well-articulated theory, an expert's opinion will just be a collection of technicalities or declarations. A coherent theory provides a context for understanding the details of the expert's work (Lubet and Boals 2009). The expert's theory needs to be an overview or summary of his or her entire position. The theory should explain in commonsense terms why the expert is correct, rather than just state conclusions.

Five variables of credibility that the expert should keep in mind are as follows:

- **Rapport:** The jury will be more open to the position of the expert who is likable, engaging, interested, committed and lively. Direct communication is key. If a genuine effort is given when communicating, the fact finders will appreciate this.
- **Reporting Bias:** If the expert gives an appearance of self-interest, this may negate a witness's credibility. The expert is more believable if he or she contradicts apparent self interest.
- **Knowledge Bias:** A visible command of relevant information correlates strongly with credibility. The appearance of limited knowledge tends to diminish credibility. The expert must be prepared in order to establish credibility.
- **Fluency and Pace:** The ease of communication; being comfortable speaking; and being able to speak without stammering or pausing, create an appearance of reliability, believability, trustworthiness, and knowledge. The pace that the expert speaks should be fast enough to be reassuring but not too fast as to seem devious.
- **Language of Expression:** The expert witness should be straightforward, decisive to emphasize accuracy and certainty. The use of nouns and verbs, not adjectives or adverbs, to describe the situation is optimal.

Curriculum Vitae

The curriculum vitae or CV is a brief biographical resume of the expert's training and career. The items that should be included on a CV are as follows:

- education, training or practical experience
- professional and technical expertise
- position and function
- recognition by other bodies such as professional associations
- awards received
- publications (books and articles)

- licenses or certifications
- memberships in professional societies (levels of membership)
- any accomplishments
- research in the field
- or any combination of the above listed

Do not lie about education, publications, memberships, research, etc. on the CV. Be prepared because opposing attorneys will research your background and may throw any skeletons or “perceived” skeletons back at you (Poynter 2005).

To view an example of a curriculum vitae:

http://www.translationdirectory.com/images_articles/SampleCV.gif

Discovery and Depositions

Discovery is a process where one side of a case looks to find something only known by the other side. This is usually a pre-trial process in a lawsuit in which each party requests documents and evidence from the other parties, typically by a subpoena or through other discovery methods like a deposition. A deposition is “evidence given under oath and recorded for the use in court at a later date” (Feder and Houck 2008). A deposition is used to achieve certain specific objectives: gathering information; uncovering inconsistencies in testimony; documenting statements, processes, and work product; and assessing a person’s ability as a witness (Feder and Houck 2008).

Depositions are usually conducted by opposing counsel, with few questions, if any, by the attorney retaining the expert’s service. The setting is normally informal, scheduled in advance, and conducted in the presence of a certified court reporter. Before being deposed, the expert should review the following:

- technical and fact data from the case
- personal scientific and technical materials
- pleadings on file in the case
- products of discovery
- standard scientific works relevant to the subject
- appropriate legal authorities

Preparing for the deposition should be a joint effort between the expert and the attorney (Feder and Houck 2008).

Discovery in criminal cases is limited to protect the identity of informants and prevent intimidation of witnesses. The prosecution provides the defense with evidence they intend to use

so that the defense will not be surprised at trial and vice versa. Anything that is relevant is available for the other party to request, as long as it is not privileged (e.g. attorney-client) or protected (e.g. work-product) (Feder and Houck 2008). The following are included but not limited to discovery: photographs, diagrams, physical evidence, police reports, and medical reports. In the trial preparation phase, many pre-trial hearings are held, and motions are filed. At the motions hearing, the evidence which will be presented to the trier-of-fact is established. At these motions, both the defense and prosecution present arguments regarding the admissibility of evidence that will be presented to the jury. These motions include probable cause, suppression of evidence, and other trial issues.

Discovery does not mean that everything is turned over. The court can add limits to discovery on the material requested if it determines that the discovery is overly burdensome, redundant, unnecessary, or disproportionately difficult to produce. Items that may be protected are work-product. Attorneys want to protect the work-product due to exposing the strategy of the case. Expert's opinions may be presented at trial but discovery is limited to the experts who are not likely to testify at trial (consulting experts) (Feder and Houck 2008).

In the trial preparation stage of a civil suit, the first official document that the plaintiff attorneys file with the court is a complaint. This begins the discovery period set by the court. During discovery, both sides may send questions to the other side requesting the names and opinions of the trial experts. During this period, both sides begin preparing experts' testimonies for trial.

Scientists vs. Technicians

One of the most effective methods of testifying is to teach: explaining the science, while being linear and historical. A historical perspective can be very effective in teaching. Many instructors want to rush to the laboratory exercise book and open it to "Page 1" instead of explaining the theory and principles behind why an exercise works or is meaningful. Practice without theory produces technicians, not scientists (Barrett 1979). Technicians know *how* to do something; scientists know *why* you do them. As Barrett (1979, page 117) notes, "Every technique is put to use for some end, and this end is decided in the light of some philosophic outlook or other. The technique cannot produce the philosophy that directs it." The difference between technicians and scientists is made perhaps a bit too sharply by Menon (2000, page 39), but the distinction becomes very clear (Menon 2000):

[Technicians] are trained to do routine things, whose significance they neither realize nor question. They may be very intelligent, but their vision is narrow, and they fail to inject inspiration and enthusiasm in their work naturally. These are the Technicians... [Scientists] question, probe, discover and create. Their creativity may take physical form, or may be in the form of original concepts. They are driven by some peculiar intrinsic motivation, which injects a dynamic dimension to all their activities. Their range of vision is broad, generally transcending their fields of specialization. They are able to discover, synthesize and manifest in their own lives, a harmony between Art and Science, and between theory and practice.

Nevertheless, a linear progression of steps, with the proper overview and explanation of the principles involved, can lay a solid foundation for testimony. The expert should work towards

the conclusions of the testimony using arguments that support the narrative. The scientist should provide enough supporting information to comfortably emphasize what has been done in the work. As a scientist, one should already be comfortable with the research and information organization. It is important to learn more about the areas of specialty and enhance one's background in it. Keeping a file on different topics in a specialty helps to refresh a scientist before a testimony, particularly on topics not testified to often. Supervisors who assume that "once qualified, always qualified," are not demonstrating a scientific mindset but a bureaucratic one. A scientist needs to constantly increase their depth, breadth, and comfort with the topics in which they work.

Regardless of whether you are a "technician" or a "scientist" (per definitions given), one can still be considered an "expert." Also, "technician" may simply be in a title, but the mind can still work as that of a scientist.

Conclusion

As an expert, scientists are allowed to render opinions about scientific or technical matters during the trial process. One may have to participate in all parts of the investigation, preparation, discovery, and trial. Remember that as an expert, one's role is to present specialized information and knowledge to the judge or jury in a clear and concise manner. It is important to always be truthful and answer any questions asked. Remember answer ONLY the question asked; there is a tendency to want to provide more information than what is required to answer the question. As an expert, asking the judge to clarify the answer if necessary is acceptable. Testimony is an integral part of the courtroom procedure and in one's duty as a forensic expert witness.

Testimony in court or at deposition should be taken seriously. Any exaggeration, underestimation, or overestimation are all indications of being unprepared and will hurt the expert's credibility. As a witness, one must translate all technical terms into common, understandable language and always be aware of one's behavior and demeanor in and out of court. The expert needs to be aware of the people they talk to and converse with while at the courthouse. Even though they may not be testifying, what they say may be overheard or misinterpreted, which can hurt credibility.

At trial, testimony will be divided into five main parts (Feder and Houck 2008):

1. Voir dire
2. Direct Examination
3. Cross Examination
4. Re-direct and re-cross examinations (as necessary)
5. The judge retaining or excusing you as a witness

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Unit 2- Attorneys & Scientists- A Natural Friction

Objectives

At the end of this unit, student will be able to:

- List the six components of organizational culture
- Describe the different cultures of law enforcement officers, scientists, and lawyers
- Describe the different mindsets of scientists and attorneys

Introduction

"What do you call a busload of attorneys at the bottom of the ocean? A good start."

"Why did the attorney cross the road? To sue the chicken on the other side."

"Why are honest attorneys like UFOs? You always hear about them but nobody ever sees them."

Jokes about attorneys are common in our culture and perhaps attorneys tell the most. Forensic scientists and other experts that testify routinely also tell them as perhaps a natural response to an unpleasant situation. A natural friction exists between the roles of scientists and attorneys. Each profession has its own culture, learned through education, training, and experience, which colors the perspective and mindset of its practitioners. Most of us may not consider organizations as having a culture or a personality, but they do. If you have gone from one job location to another, you've probably noticed that the people may act differently; there are different dress codes, different behaviors, and possibly different attitudes about things. A professional culture exists in every organization, every laboratory, and every courtroom, yet it is difficult to be objective about your own culture.

There are six components of organizational culture:

1. Cognitive schemas: scripts and frames that mold our expectations and help us assign meaning and order to the stream of experience
2. Shared meanings: common interpretations of events
3. Perceptions: how the world is, how things work.
4. Prescriptions and preferences: what the best way is to do things; what the organization wants to happen
5. Behavior codes: how to dress, how to act, what kinds of things that can be joked about

6. Basic values: what is really important; what is good, what is bad

Organizational Culture— Cognitive Schema and Shared Meanings

One of the components of an organizational culture is the cognitive schema (scripts and frames for the behavior of how you go about doing things, molding our expectations): shared meanings, common interpretations of events, the way people celebrate things. Jurisdictional size, hierarchical status, and organizational location all make a difference in how the laboratory perceives itself and is perceived by others.

Organizational Culture— Preferences and Prescriptions

Preferences and prescriptions also define an organization. For example, whether or not the laboratory has performed thin layer chromatography on ink samples may be historical, if no one currently in the lab has experience in that method, it may not be performed. The last supervisor in that section may not have been able to spot the TLC plates well and, therefore, made an argument for a liquid chromatograph. Both methods are acceptable for that type of analysis but using liquid chromatography over TLC has developed historically in that laboratory. One method may not necessarily be better than the other for that type of evidence; however, the agency goes with what they know.

Organizational Culture —Behavioral Codes and Basic Values

Behavioral codes: how to dress and how to act are important to an organization's identity. Some laboratories require a shirt and tie every day, or polos and khakis may be considered suitable—it just depends. The behavioral codes also involve the basic values—what is really important, what matters, who do you go to for answers? All of these things go into making up an organization.

All of these points are important when our discussion shifts to attorneys because their organizational behaviors and codes will naturally be different. The culture of general science (research, university, medicine, etc.) is even different from forensic science (legal issues, chain of custody) although they are related through science. In fact, even within forensic science, we speak of different groups almost as if they were different tribes such as “DNA people” or “trace people” because even within specific professions, there are subcultures.

Clash of Cultures

Although the two cultures of general science and forensic science are slightly different, the culture of law is vastly different from any type of scientific culture. The friction that occurs in the courtroom is because of the differences and frustration between these cultures. Attorneys and scientists usually do not interact until they get to the courtroom. Scientists and law enforcement officers usually do not interact until there is a case that gets submitted to the laboratory. Peripheral interactions may occur on a routine basis but not necessarily every day. A scientist certainly has more contact with the people in his laboratory than with the agents of the agency he serves. Usually it is in the courtroom where all three overlap and where the most friction occurs. It is important to remember that these three entities have very different views in a professional culture.

	Law Enforcement	Scientists	Lawyers
Truth	Mutable; Binary; may evolve but must become final	Mutable; scalable; may evolve over long periods of time	Fixed; Binary; must become final in a short period of time
Dialog	Hierarchical; ordered; coded; question-and-answer	Peer-to-peer; open, free, exchange	Cross-examination; directed, question-and-answer; some information private
Viewpoint	Experienced-based; first-person; intuitive	Truth is not fully known (or knowable); query-oriented; rational; discipline-based	Truth based on precedent; decision-based; rule-oriented; advocate-based
Advocacy	Government	Neutral, although offered by plaintiff or defendant	Plaintiff or defendant
Structure	Authoritarian	Collaborative	Adversarial

The type of questioning or dialog can offer insights into how these professional cultures differ in their outlooks. A good example is the word “error”. A scientist knows that there is error in every measurement taken, which is why statistics such as the standard error of the mean are calculated. Unless it is known how much error there is in a measurement or a set of measurements, one does not know how accurate they are. But imagine an attorney who hears that there is error in every measurement that is made: they will wonder what kind of scientist one is. The more aware a scientist is of these differences, the better the chance he/she will have of crossing that professional culture boundary successfully.

Clash of Cultures— Alignments and Overlaps

Alignments and overlaps between the cultures of police officers, scientists, and attorneys exist.

A scientist's or police officer's native rules, those rules that they follow on a day to day basis, do not work in a courtroom. This is one of the points of the course: How do law enforcement officers, attorneys, and scientists interact? What are the points of contention and how can we alleviate them? We cannot hope to provide all of those subtle aspects of the scientific endeavor to an attorney. They are not scientists and cannot be dragged completely to the scientific side. But scientists have to be able to provide enough science that the law can do its job: Reaching a decision in a certain amount of time to a certain level of sufficiency.

Clash of Cultures— Differing Perspectives

For the scientist, it is important to remember that a judge is not a scientist and a courtroom is not a laboratory: when a scientist steps into a courtroom, 90% of what he does on a daily basis is left with the bailiff at the door. The scientist is stepping into a completely different environment. When the scientist truly understands this, he is less likely to think the proceedings are not fair. The court may not care: they do not play by the scientist's rules or ideas of what constitutes fairness. Yet, the expert often walks in with an expectation that the proceedings should all be based on what the expert considers rational procedures. The proceedings may not work that way at all. The trial of Elizabeth Wharton in 1871 demonstrates that this is not a new phenomenon (Fee and Brown, 2005)—the trial had dueling experts that created such an outrage that it sparked a national debate about expert ethics, ignoring that the attorneys in the case had “shopped” for opinions. For more information regarding the Wharton trial, please read the following article: ["Expert Witnesses in Late 19th Century America"](#)

“They don't care about the facts. They don't care about the truth. Lawyers don't. They care about representing the client. Well, engineering training is different. You're trained to look at everything, all the evidence, and then put it in a screen and sift it out and see what pops out...I think their training teaches them to be an advocate, to disregard certain facts and only introduce the facts that are relative to their theory of the accident. I think that's the basic conflict. Their training is totally different than ours.” (Prichard, 2005, page 26).

The quoted engineer is saying this out of frustration but he hits on the main reason for the disconnection between attorneys and scientists. Attorneys took law classes, not science classes and vice versa. A scientist should not expect an attorney to think or act like a scientist. The tone of the engineer's words indicate that he feels the attorney's outlook is wrong—they should, in his opinion, consider and present all of the facts. But this ignores the attorney's basic role: Constructing a viable argument that will work in a courtroom (and not necessarily in a laboratory).

From the attorney's perspective, working with a scientist is just as frustrating:

“[Scientists] are willing to look at weaknesses, short-coming, problems with the product. And they make notes about it. They ask questions about it. And they're usually very honest and exacting about it...And I find that to be a problem.” (Prichard, 2005, page 28).

The attorney finds it difficult to work with scientists [engineers] because the engineers are willing to be open-minded. An engineer may not say “yes” or “no” but may instead want to go

back and look at the data and see where it takes them, which runs counter to what the attorney wants. Attorneys have a set of facts in any case and they have pulled from those specific facts they want to use in court. Notice the attorney may not use all the facts—it is not necessary. In essence, they get to play whatever cards they want from the entire deck. From those selected facts that portray the argument they want to offer, the attorney constructs their version of the strong narrative. The expert is there to help support those facts the attorney wants to use. The expert may suggest that there is some information the attorney is ignoring, which seems inappropriate to the scientist. The attorney may say, “Yes, I know, I want to ignore them. We’re not going over that again; it’s not going to be used.” To the scientist, this can be frustrating. This friction is part of the conflict: Scientists are taught to be open-minded, to go back and look at the problem again. Attorneys, however, have a definite time period and need to have a definite result to reach that conclusion.

Attorneys and Scientists—Differing Mindsets

A good example of the difference in mindset between attorneys and scientists is the question, “Do you know what time it is?” The attorney may be looking for the answer, “It is 9:12 am” while the scientist, wisely listening to the question, says, “Yes.” The answer “9:12 am” is not only wrong but the expert is providing more information than is requested. Testimony is not a normal form of communication. An attorney may say, “We are just going to have ourselves a little conversation, here”—it will be anything but a normal conversation. The difference in the answers for that subtle question provides an important insight to you.

Scientists rarely concern themselves with “good” or “bad.” If a car crashes, the attorney’s concern is who is at fault; a scientist will say it is just physics. The failure of some device, such as a car, or the transfer of some material does not imply a moral value—it is just what happens. That objectivity is the central concept of the way scientists have been educated and trained.

Attorneys become worried when the scientist does not understand what is necessary to win a case. The attorney wants an answer to a question to help establish some fact as fixed. The scientist may not be good at speaking or describing their work; meanwhile the attorney becomes more agitated, wondering what is wrong with this supposedly smart person. The friction comes from the differences between the professions—the scientist may not be good with rhetoric but the attorney does this all the time—constructs arguments, makes statements, pulls sentences together, uses the right words. The attorney sees the scientist as having necessary information but cannot reliably communicate it convincingly.

Unit 3- Preparation for Expert Witness Testimony

Objectives

At the end of this unit, the student will be able to:

- Describe how an expert witness should prepare for testimony
- Describe what should be included/excluded from reports and visual aids
- Describe the Do's and Don'ts of how to dress for court

Introduction

An expert witness serves an essential function by providing testimony utilized by the judge and/or jury (trier-of-fact) in deciding a material matter in the underlying case. It is important to keep in mind that the opposing counsel will go to great lengths to eliminate or discredit the testimony of opposing side's expert witness. An expert witness should render fair and impartial testimony based on facts concerning his/her own specific areas of expertise. Being prepared to give testimony is one of the most important aspects of being an expert witness.

Preparation for expert witness testimony is essential. If an expert is not prepared to testify, he/she does not belong in the courtroom. Preparation includes the following:

- reviewing reports
- understanding the fundamental theories of the discipline
- familiarity with the science (not what exams the expert performed—that is the method or protocol) of the discipline
- the names involved in the case
- familiarity with all parties involved, the courtroom, and the prosecutor

Identifying the Strategy

The expert witness should know the strategy of his/her case but careful not to get too invested. He/she may ask the attorney for the case plan – what are the logic, theory, and strategy of the case? The attorney may not want to divulge this information or is ill-prepared but as an expert

A prepared expert witness:

- *Is well versed in the facts of the case*
- *Testifies consistently whether under direct or cross-examination*
- *Puts the facts of the case in a manner that can be easily understood*
- *Is familiar with all of the relevant information*

witness, it still needs to be asked. If the attorney has not prepared or asked about the testimony that the witness will give, point this out and try to be of assistance. Most attorneys understand the basic scope of a case but the expert has considerable knowledge that the attorney lacks.

Communication between the expert and lawyer is key. Both should understand the limits of his or her frame of reference, the different cultures, communication differences, and should be open to input from the other. If the attorney fails to give expert guidance, the expert still must be fully prepared to testify. If the lawyer does not contact the expert, the expert can and should request a pretrial conference. It is the expert's professional integrity that may be challenged—and whose reputation will suffer—if the expert's work appears to be incomplete, inadequate, or legally irrelevant (Lubet and Boals 2009).

It has been mentioned that science and the law vary in rules for communication. Science and the law also vary in [their] overall function, value, and goals. Understanding *value* differences can lead to understanding differences in the idea of "scientific uncertainty." In the scientific community, scientific uncertainty is expected and the knowledge of the details is welcomed. In law, scientific uncertainty is a way of discrediting an expert. The word "uncertainty" gives the impression that the scientist has a level of doubt in their work and that it is somehow a negative reflection of that work. In addition, the way opposing attorneys state and restate scientific results can alter the perception of the information. Attorneys may manipulate the expert to say what he or she does not mean and then attack the expert's credibility to undermine the testimony. Such a situation presents the differences in values of scientists and lawyers.

The differences in goals illustrate that science and law are two separate cultures. Like the relationship between science and criminal justice, each group has its own standards for conduct, beliefs, and obligations. Each group has a complaint against the other; forensic scientists often complain about the unethical conduct of aggressive lawyers, while the attorney is doing nothing more than fulfilling the duty of representing their client's best interests. Conversely, lawyers are frustrated by scientists who provide different opinions in the same case while they may be doing nothing more than confirming the tenuous nature of so-called "*scientific laws and facts*" (D. Lucas). Here you can see the differences between the two cultures:

Issue	Science	Law
Truth	Serves everyone's interest	Serves the interest of the client
Communication	Open	Privileged
Process	Unbiased, Systematic, Exact	Adversary
Goals	<ul style="list-style-type: none"> • Provide socially valued goods and services • Advance human knowledge • Eliminate false beliefs • Documentation 	<ul style="list-style-type: none"> • Serve the client • Produce a better argument than the opposing counsel

Preparing and Developing Data

The expert can receive various types and forms of information from the lawyer: pleadings and court papers, evidentiary documents, deposition transcripts and discovery responses, stipulations and judicial admissions, and case details. The expert develops data beyond that which was supplied by the attorney. The type of data depends on the individual's expertise. As an expert, all data compilation is generally considered discoverable by the opposing party, so all notes, papers, drafts, protocols, tests, analysis, models, memoranda, and other preliminary work may be turned over to the opposing counsel. A competent expert witness will make sure that his or her notes or tests are not misleading or subject to misinterpretation by opposing counsel (Lubet and Boals 2009).

Past Writings and Presentations

A prepared expert witness will need to know about their past writings and presentations. One should expect all prior writings, speeches, presentations, and testimony to be fair game in any trial. This includes, but not limited to, any information provided in trade journals, speeches, lectures, newspaper articles, and emails. The expert needs to save all case notes as well. Note: all doodles, personal notes, etc. included from the scene notes should be minimized to reduce potential embarrassment. The expert should make sure they have reviewed everything they have written in their professional career. If a stance on certain issues has changed, the expert needs to be prepared to explain why and how they have changed their mind.

Practice, Practice, Practice

The old saying "practice makes perfect" is important for the expert witness. Even if the expert is experienced in courtroom appearances, he/she will not be totally prepared for the subject matter of any one particular case. When planning to use exhibits during testimony, the expert witness needs to practice handling them, showing the slides, using the clicker/pointer, knowing where to stand so everyone can see the exhibit, or performing whatever movements that might be made during the presentation. Ask fellow employees to listen to the speed, volume, and clarity of the presentation and give constructive criticism. To be comfortable while testifying, the expert should visit the courtroom to get familiar with the surroundings. Know the rules of the courtroom (ie. Do you stand or sit while testifying? Will you have a projector or screen available?). When testifying, always have a backup plan. Bring extra batteries, a print out of the presentation, and a back-up of the presentation on a jump drive if using a laptop, bring an extra bulb if using a projector, bring different shoes (flats for women) in case standing is required for eight hours, and *always* expect the unexpected.

Reports

Even though forensic science laboratory reports have various formats based on the agency/organization/laboratory, they should all contain the following information:

- Name of examiner who conducted the tests
- Agency where the examiner works

- Date the report was issued
- Case identification information
- Contact information for the examiner
- Items examined
- Methods and instrumentation used to examine and analyze the submitted items
- Results of examination and/or analyses
- Interpretations or statistics that are relevant to the results
- Statement of the disposition of the evidence
- Signatures of examiner and any reviewers of the report

The format should follow a standard scientific paper, including an introduction, materials & methods, results, conclusions, and discussion. It is important to remember the audience of the report is generally law enforcement officers, attorneys, and judges; not scientists (Houck and Siegel 2006).

When writing a report for court, be aware of what may be required because different courts and jurisdictions require different things. In federal court, the expert has to submit reports prior to testifying. In some states the expert must provide written answers to certain questions, in others he or she must prepare a report, and in a number of states the expert only has to show up ready to testify at trial (Lubet and Boals 2009). The content of the report is also critical. Under federal rules, the following must be included in the expert's report:

- A complete statement of all opinions to be expressed
- The basis and reasons for the expert's opinions
- The data or information considered by the expert when forming the opinion
- Any exhibits to be used to summarize or support the opinions
- The qualifications of the expert witness (including a list of all publications)
- The compensation to be paid for the study and testimony
- A list of any other cases in which the witness has testified as an expert

The organization of the report is also important. When writing the report, make sure there are an introduction, statement of opinion, overview, analysis, supporting data, and any additional required disclosures or appendices (Lubet and Boals 2009).

Visual Aids

Preparing exhibits, demonstrative charts, tests, and documents before trial is important. Any demonstration must be tested before trial or hearing. Most trial exhibits should be shown to

opposing counsel in advance of trial and court approval obtained. This is an easy way to guarantee the admissibility of a key visual aid. Keep in mind that all visual aids must be accurate and technically correct. Depending on the court, some demonstrative evidence may be excluded because it is deemed “prejudicial,” meaning that its value as evidence is outweighed by its shock value. For example, color photographs of mutilated bodies may be considered too emotionally disturbing to be useful as evidence (Feder and Houck 2008) and depending which side retains the expert—the shock value may help the case if they can get the evidence admitted.

Visual aids can help boost the presentation of the expert witness by helping to relate the witness’s opinion to the jury in a simple and direct manner. However, visual aids can backfire if they are done incorrectly. For example, if a visual aid of a fingerprint comparison was created but the images were too small for the jury to see or had too much information, the jury may be overwhelmed and think the expert did not know what they were doing. Any unnecessary exhibits and testimony should be eliminated before trial (Feder and Houck 2008). Here are a few rules to consider when preparing visual aids for court:

- Make sure they can be seen because you may not be able to control the lighting in the courtroom (large enough fonts, emphasis on markers or arrows, highlighting important information, etc).
- Charts and graphs that cannot be seen in the courtroom are ineffective and damaging to the perception of being a competent expert witness.
- Make sure the aid actually helps. Do not have a chart just to have one.
- Keep the aid simple.
- Use color.
- Vary the format of the aid if using more than two.
- Prepare the visual aids on a white background.

Once you have prepared your visual aid, you must be able to present the material to the trier of fact in a way that is understandable. Here are a few rules to keep in mind when presenting visual aids in court:

- Try to set up the visual aid in an area of the courtroom with enough light to allow the jury to easily view the aid.
- Leave the aid up long enough for your audience to conduct a meaningful review.
- Do not assume the trier of fact has 20/20 vision.
- Do not stand in front of the visual aid when you are talking about it.
- When highlighting something on the aid, keep your pointer on it for an extended period of time.
- Show the visual aid while you are discussing it, not before or after.

- Make sure the aids are organized and in the correct order of the presentation.
- Do not turn your back on your audience, the trier of fact.
- Repeatedly practice your presentation with your visual aids.

In the Courtroom

When appearing as an expert witness in a court of law, formal business attire is essential. Courts are conservative environments and a good witness will blend in. Here are some dos and don'ts of courtroom dress:

Do	Don't
<ul style="list-style-type: none"> • A business suit • Appropriately fitting clothing • Clean shoes • Cover visible tattoos 	<ul style="list-style-type: none"> • Anything in excess or too dangly (jewelry) • Anything distracting (hair styles) • Too much skin showing • Inappropriate shoes

Inappropriate dress can be distracting. You, as an expert witness, are in court to communicate your testimony. Some other distractions are chewing gum, candy, breath mints, or anything that may interfere with your ability to speak.

As a witness, personal mannerisms are extremely important:

Effective Witnesses	Ineffective Witnesses
<ul style="list-style-type: none"> • Make eye contact with whomever they are addressing • Do not make inappropriate facial expressions • Refrain from distracting movements or habits • Sit upright and have good posture 	<ul style="list-style-type: none"> • Constantly fiddle with clothing • Fuss incessantly with jewelry or eyeglasses • Engage in knee-bouncing • Display other mannerisms that suggest nervousness • Shift weight or sway, if standing

Be aware of tone when presenting testimony. Tone can show non-verbal attitude. A strong tone conveys confidence and knowledge while other tones can impart impatience, fear, and lack of preparation. To be effective speak clearly and distinctly, do not change speaking tone, and appear controlled and confident. One of the most damaging personal habits of an expert witness is speaking or answering too quickly.

Always sit up straight – do not lean to the side, slouch, or sway back and forth. Try to keep arms and legs flat and not crossed.

A good expert is always aware of his or her demeanor. If the attorney asks a question that may anger the expert, *never show anger and never answer a question in anger*. When experts lose control of their emotions, they will not do what they are in court to do: give truthful answers and be taken seriously by the triers-of-fact. Experts should remain calm, polite, and answer the question. No matter how much the attorney tries to anger the expert, the witness should be more courteous and professional than the attorney.

Listening to and Answering Questions

Listening is critical to successful testimony. Experts should be responsive and simple in their answers. They should never embellish. If the question is not understood, clarification can be requested, especially if the question is vague.

In court, attorneys have a duty and right to object and the expert must give them that opportunity. At the time of the objection, the expert should immediately stop talking, not even finishing his/her thought. The judge has to rule on the objection before the expert can answer, and the expert should wait until the objection and ruling are over before answering.

Some experts believe that all questions should be answered either “yes” or “no.” Many questions would be incomplete or ambiguous if answered with only “yes” or “no” because more information or details are needed. If the attorney asks the expert to only answer “yes or no,” he or she is entitled to tell the attorney that it cannot be answered that way without being misleading. But if the court directs the expert to answer with a “yes” or “no,” hopefully the request regarding explanation will flag the question to be revisited in re-direct questioning. Compound questions are another form of questioning that the expert should be aware of especially if several questions are rolled into one. A compound question is one that contains several components that might require different answers. This type of question will generally raise an objection in trial because the witness will be unable to answer the question unambiguously (Feder and Houck 2008). For example, the attorney asks, “Isn’t it true that you extracted the sample, then ran the confirmatory test and placed the sample in the centrifuge?” This question cannot be answered with a simple “yes” or “no” because all or part of the question could be true. The expert can say that he or she will answer each question one at a time.

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Unit 4- Direct Examination

Objectives

At the end of this unit, students will be able to:

- Define direct examination
- Describe the process of *voir dire*
- Discuss why laying the foundation of the expert's science is important
- Define circumstantial evidence and why it is important

Introduction

Testifying is the second most important job that a forensic scientist does when working on a case—the first being the quality of his/her work. When the forensic scientist is assigned evidence on a case, the case is usually sent to the grand jury to determine if there is value to move it forward. The work that the forensic scientist submits is evaluated by the prosecution and/or defense attorney.

The forensic scientist can be called to testify by either side in a case. The side, whether it is the prosecution or defense, will question the scientist under direct testimony to establish the basis and relevance of the work performed.

The forensic scientist should keep in mind when testifying to answer the questions asked and *only* those questions. The expert should always follow the 3 P's of testifying: be polite, patient, and professional. The forensic scientist should give testimony that any lay person would understand and not talk over the heads of the jury or trier-of-fact. They must always tell the truth and be prepared. While on the stand, the forensic scientist must speak clearly, slowly, and loudly, with confidence. When giving testimony, the forensic scientist should never ask questions. They should never be combative or a "smart ass," (no matter how much they are baited by the opposing counsel).

One of the most important things that the forensic scientist needs to remember is to be prepared. He or she must know the science behind the tests that were performed. They need to be able to explain in simple detail and terminology. He or she needs to think of it as teaching the jury about what was done in the examination. When answering the questions, the scientist should always address his or her answers to the jury, not the attorney.

Direct Examination

Direct examination is the heart of the case. According to Feder, direct examination is "the questioning of a witness by the attorney who called him in a court of law and is performed to provide evidence to support the facts of the attorney's argument." Direct examination consists of questions for a lay or expert witness that will elicit facts that supports the prosecution's or

defense's theory of a case. The goal of direct examination is to educate the trier-of-fact, which means the witness needs to be understandable, interesting, and persuasive. Good direct testimony should break down all the information and research to the essential elements and hit both high points and refute weak points of the case (Matson, Daou et al. 2004).

Direct examination, for an expert witness, may be understood as the intersection of credibility and preparation. The expert has done his or her work diligently and thoroughly, finished the research, reviewed and assimilated the documents, been deposed, studied the pertinent literature, and written the reports for the case (Lubet and Boals 2009).

The witness is the center of attention in direct examination. The attorney asks the questions and the witness must carry forward the weight of the narrative. The questions must be non-leading, short and open-ended: "What did you do?" "Why did you do it?" "What is your opinion?" "How did you reach it?" (Lubet and Boals 2009).

The goal of direct examination is to educate the fact finder or trier-of-fact. The expert must provide his or her opinion, explain its foundation, substantiate its basis, and present the data. No direct examination will succeed if the witness just states facts, detail, technicalities, or statistics with no explanation. The judge or jury has to understand the meaning of expert's theory if the direct examination is to be a success (Lubet and Boals 2009).

Voir Dire

The term, *voir dire*, is the Middle French term for "speak the truth." In relation to expert testimony, *voir dire* is a motion to cross-examine an expert witness during opposing counsel's direct examination. This action is intended to establish the credibility of the expert witness before damaging evidence is brought to court (Houck and Siegel 2006).

During voir dire, there will be a review of the expert witness's credentials; including education, job experience, work history, previous testimony, publications, professional associations, and training. After *voir dire*, the judge will either allow or prohibit the testimony of the expert witness.

Laying the Foundation

To be a good expert witness, the expert needs to be able to lay the foundation for their science: Why is it you can do what you do? Not *how* you do it (method) or *what* you do (process), *why* can you do it? *Why* can fiber examinations and comparisons be conducted, *why* are they a valid method for the analysis of evidence? *Why* can a scientist say this fiber or these fibers are analytically indistinguishable from the known fibers from the victim's sweater and, therefore, could have come from it? Laying the foundation of the science is not as easy as it sounds. It takes time to sit and reflect and condense this information down into a terse solid format, to be able to explain something like infrared spectroscopy or mass spectrometry in easy, simple—not simplistic—terms. The more basic the concept, the more difficult it may be to make clear at a fundamental level (Norman 1988).

Direct testimony can be thought of as teaching. The essence of expert testimony is the ability to teach. Some qualities of a good teacher are being well informed, enthusiastic, and provocative, while using examples and illustrations. The expert witness needs to look at the jury as students wanting to learn. The expert needs to communicate to the jury the information that needs to be presented. The jury does not have to be experts; they just have to understand enough to appreciate the results. This teaching mindset is lost when experts want to pound the jury with information or expertise. They are not engaging, personable, or sensitive to their role as instructors. Organization and tone are critically important to an engaging teaching style—the audience needs to know where they are and where they are going and it helps if they think the teacher is also interested in the topic (Hager and Scheiber 1997).

The teaching mindset starts with the attorney who subpoenaed the expert. The expert will benefit if he or she spends time with the attorney and teaches him first during the pre-trial conference. The best prosecutors sit down, study textbooks, read through them, review the evidence, and have a list of questions. They are involved, they are engaged, and they want to know. It is just as important to work with the opposing attorney if possible. Some agencies will not let their employees converse with defense attorneys due to conflict of interest. Teaching defense attorneys can gain the expert a large amount of ground because the attorneys begin to understand the science and may ask better questions.

Strong Narratives

In his book, *Strong Representations*, Andrew Welsh provides a historic review of narrative and circumstantial evidence in England after the turn of the last century. He defines a strong representation as a factual, carefully managed narrative from circumstantial evidence that wants to prove something more encompassing than personal direct testimony (Welsh 1992). It is a fascinating process to read about and to see how testimony in court shifted from personal eye witness testimony (“I saw him steal that horse.”) to circumstantial evidence (“The hoof prints of the stolen horse were found outside the suspect's barn.”). It is important to note at this point that *virtually all forensic evidence* is “circumstantial” evidence, including DNA. The phrase “circumstantial evidence” gets bandied about by attorneys. The legal definition of circumstantial evidence is “a collection of facts that, when considered together, can be used to infer a conclusion about something unknown, supported by a significant quantity of corroborating evidence.”

In a case from Florida involving a young girl who was sexually assaulted and killed, a trash bag, various fiber types, and hairs, among other evidence, were found on the victim's body. One of the hairs was a pubic-like body hair on her thigh; the victim was nine years old and therefore the hair could not have been hers, biologically speaking. The mitochondrial DNA sequence of the hair was the same as that of the suspect. The dog hairs from the victim's clothing were the same as the suspect's pet dog's hairs. Fibers in the debris removed from the victim's clothing were the same as those taken from the suspect's residence. The trash bag in which the victim's body was found was seriated to within one bag of the roll recovered from the suspect's vehicle. From either a scientific or legal perspective, that is a strong narrative against the suspect. After all the evidence and the results were laid out for the attorney, he commented that it was too bad that all

he had was circumstantial evidence (Ryland and Houck 2001). Nevertheless, the attorney came to understand the value of the evidence and won the case.

Circumstantial is literally the evidence of the circumstances surrounding the event. Anyone who is not a direct witness of the event is working from the subsidiary evidence that results from the event. Circumstantial evidence is evidence of things not seen. Poisons are the ultimate example of "evidence not seen." A substance is slipped into someone's food and they fall ill and die. The substance is covert and unknown to everyone but the poisoner. The evidence of the poisoning is not the adding of it to the food, it is the detection of it or its by-products in the food or the victim's body. This proxy data describes the evidentiary remnants of past activity (Malin, Edgett et al. 2006) and is a phrase ("evidence not seen") used by geologists and others who study ancient natural phenomenon. Forensic science works in much the same way but on a very different time scale: Not over millions or billions of years, but over days, weeks, maybe months (Houck and Siegel 2006).

Strong Narratives Continued

Given that circumstantial evidence is inferential, the witness's arrangement of his or her testimony must be carefully managed to produce a strong narrative. Such a narrative has to be devoted to the facts but carefully crafted, the arguments constructed, and the evidence pulled together coherently. Facts, however, get subordinated to the conclusion. Testimony is not about the facts, it is about the evidence. It is the same with a strong narrative—it is not necessarily about the facts but the conclusion. What conclusion do the facts lead to? People may lie, facts, arguably, do not, in terms of science at least. But they may be arranged so as to not tell the whole truth either. This supports the contention that a deep dialog needs to be started and maintained between the scientist and the attorney.

A strong technique for direct examination is for the attorney to offer up the weakest parts of the expert witness's testimony, rather than hoping they do not appear in opposing questioning (Rottenberg 2000). Why? It reduces the impact if the question does come up on cross—"Yes, I did state on direct that..." Additionally, the witness does not have the appearance that he might be trying to hide those weaknesses from the jury; he has willingly made that statement. Offering the weakest part of the testimony also supports the rationale for spending the time with the defense attorneys, if possible. Meeting with the opposing attorney also provides the expert the opportunity to learn the attorney's professional culture, learn their behaviors, and learn how they think. This may help the expert know how to better answer or structure questions and anticipate where problems are going to occur.

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Unit 5- Cross-Examination

Objectives

At the end of this unit, the student will be able to:

- Define cross-examination
- Describe how to prepare for cross-examination
- Discuss how to respond to cross-examination
- Describe attorney's goals at cross-examination

Introduction

Cross-examination is the questioning of a witness in a trial by the party opposed to the one who produced the expert witness. Most experts dread cross examination because it has the component of not knowing what's going to happen next. Preparation has a great deal to do with comfort on cross examination (Feder and Houck 2008) and, ultimately, that is based on the witness's direct testimony. Most of the advice about preparing for direct examination, in large part, applies to cross examination. Consider this: There should be nothing in the direct testimony, either spoken or as supportive materials that is not going to come out on cross examination. Aspects of it may be emphasized more or less, like evidence handling, procedures, or chain of custody. No questions should be asked on cross examination that you do not know the answers to during direct testimony. Experts may get into trouble on cross examination when they anticipate the questions too much and they do not think through the consequences of their answers. The anticipation keeps them from paying attention to what is happening *right now* in the courtroom; inattention can be disastrous. Not thinking about the consequences means they may have become the slave of one of their hypotheses, questions, or answers and are now using it as a devoted crutch. Giving ground cannot only be an effective tactic on cross examination; it may be the best answer to that particular question.

Giving ground, however, does not mean giving up. Should an attorney ask, "Well isn't what I've suggested at least *possible*?" One expert has said, "It's possible in the sense of flipping a coin and it landing on edge. The answer is yes, but is it probable? No." That kind of answer fits within the framework of the question but the difference between possible and probably is made clear. There is little room for error or misinterpretation.

A good cross examination, unless the expert has made an error, has very little to do with being a scientist. It is more to do with personality, composure, presentation, public speaking, etc. Can the attorney get the expert flustered? Can they get an expert to question themselves? Can they get the expert off center or off topic? Can they pull the expert in to an area of expertise that is not really their area? An attorney may try to pull an expert outside their area of expertise for many reasons, including leading them on to a point where their lack of expertise becomes apparent, to make a key point, or discrediting them by showing they will be unethical and testifying beyond their expertise. A good expert needs to be mindful of these tactics.

Preparing for and Coping with Cross-Examination

The expert witness needs to thoroughly prepare, have self-confidence, and maintain steady concentration when facing cross-examination. As long as the witness has done their work, believes in their position, and listens carefully to the questions, they will survive cross-examination (Lubet and Boals 2009). To prepare, the expert needs to review their deposition and have appropriate responses planned, expect challenges to assumptions and methodologies, and anticipate the questions that will come if there is a weakness uncovered (Matson, Daou et al. 2004).

A technique that helps to steady the expert is to treat the defense attorney like they treated the prosecutor. Composure and patience are key on cross examination; the expert cannot, for example, get flustered by how many other questions are coming; it could be one question or it could be a hundred. The important thing is to answer each question as it comes and not worry about external matters.

Another technique that helps the expert retain composure, and helps with the jury's perception of the expert as a scientist, is to stay with his or her own wording. Attorneys may want to cut corners because they are not familiar with technical wording or may not know the difference (remember "error"?). It is the expert's job to stay on track and stick to the most accurate wording. For example, with microscopical hair examinations, a report of a positive association may be worded as, "The questioned hair exhibits the same microscopic characteristics as the known sample and therefore could have come from the same person that provided that sample." An attorney may re-state this as, "So, the defendant's hairs were found..." This slips across a line of specificity that the scientist cannot support: the hairs have the same characteristics as the known sample but cannot be demonstrated to have come from the defendant absolutely. The expert could respond, "I cannot say that this is the defendant's hair. The questioned hair has the same microscopic hair characteristics as the known sample which came from the defendant which..." and reiterate the report wording. As complicated and as repetitive as it may sound, that is the correct answer. The expert must demonstrate patience and answer the same way, consistently.

Responding to Cross-Examination

According to Matson's "Effective Expert Witnessing," there are nine principles for responding to cross-examination:

1. Cooperate as much as possible
2. Stay calm
3. Think before answering
4. Understand the question
5. Make reasonable concessions

6. Recognize the legal standard
7. Take opposing views seriously
8. Read the documents
9. Become familiar with the courtroom

Attorney's Goals on Cross-Examination

According to James McElhaney, there are eight fundamental techniques that attorneys use to cross-examine an expert witness (McElhaney 1989):

1. Make the expert your witness; turn the testimony to support the opposite position
2. Attack the field of expertise; show lack of recognition of the professional field
3. Attack the witness's qualifications; establish gaps in the professional resume
4. Expose the witness's bias; give reasons why testimony is slanted
5. Attack the witness's fact basis; investigation was inadequate
6. Change the hypothetical used on direct; vary the facts to support the opposition if use of the hypothetical question is the basis for expert opinion
7. Impeach the witness with learned treatises and journals; any recognized text, authoritative in nature, can be used to cross-examine
8. Attack the witness head on; find prior contra writings by the witness

The expert needs to keep these tactics in mind when preparing for cross-examination.

Redirect Examination

Redirect examination is the direct examiner's opportunity to correct any misimpressions created during the cross. Redirect examination always follows cross-examination. This is the opportunity for the expert to explain any inconsistencies, to add information that was prevented on cross, to fill any gaps, or to reiterate points that may have been obscured. It is the attorney's job to decide which issues need to be addressed based on cross-examination. Redirect will help the expert clear up ambiguities that may have arisen during cross (Lubet and Boals 2009).

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Unit 6-Important Cases for the Expert Witness

Objectives

At the end of this unit, the student will be able to:

- Define Federal Rule 702, *Testimony by Experts*
- Describe the important cases: *Frye*, *Daubert*, *Joiner*, and *Kumho*
- List the five *Daubert* factors

Federal Rules of Evidence

The Federal Rules of Evidence (FRE) govern the admissibility of evidence in both civil and criminal cases. These rules apply only to federal courts, but a large majority of the states have adopted similar rules for their court systems. The rules cover how evidence should be treated in the courts and how expert witnesses can present evidence. The FRE help to ensure that juries ultimately consider **only** admissible material and relevant evidence when deciding a verdict.

Rules 101 and 102 explain the scope and purpose of the Federal Rules of Evidence. Rule 102 states the purpose as, "these rules shall be construed to secure fairness in administration, elimination of unjustifiable expense and delay, and promotion of growth and development of the law of evidence to the end that the truth may be ascertained and proceedings justly determined."

The Federal Rules of Evidence are divided into eleven articles. Each article contains one or more rules. The articles are:

- I. General Provisions
- II. Judicial Notice
- III. Presumptions in Civil Actions and Proceedings
- IV. Relevancy and Its Limits
- V. Privileges
- VI. Witnesses
- VII. Opinions and Expert Testimony
- VIII. Hearsay
- IX. Authentication and Identification

X. Contents of Writings, Recordings, and Photographs

XI. Miscellaneous

FRE: Rule 702

Rule 702, *Testimony by Experts*, states, "if scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise, if (1) the testimony is based upon **sufficient** facts or data, (2) the testimony is the product of **reliable** principles and methods, and (3) the witness has **applied** the principles and methods reliably to the facts of the case."

Rule 702 permits expert opinion testimony. Within 702, the expert witness must follow the *Daubert* factors: theory must be testable, subjected to peer review, known error rate, standards, and general acceptance in the scientific community. These factors help to assess the reliability of scientific expert testimony. The qualifications of the expert are also taken into account before the expert can testify. *The Daubert factors will be discussed further in up-coming sections.*

Frye v. U.S.

Frye v. United States, 54 App. D.C. 46, 47, 293 F. 1013, 1014 (1923) is a landmark Supreme Court decision that involved the admissibility of scientific evidence. This was a criminal case that involved the results of a systolic blood-pressure test or a polygraph, in a murder trial. At the time, the test was seen as a new science, and the court decided that the evidence was not admissible because it was not generally accepted by the relevant scientific community. The evidence that was presented was not generally accepted and not admitted. This standard was established and became known as the *Frye* test of general acceptance. The following statement from *Frye v. U.S.* (1923) has become known as the *Frye* rule or test of general acceptance:

"Just when a scientific principle or discovery crosses the line between the experimental and demonstrable stages is difficult to define. Somewhere in this twilight zone the evidential force of the principle must be recognized, and while courts will go a long way in admitting expert testimony deduced from a well-recognized scientific principle or discovery, the thing from which the deduction is made must be sufficiently established to have gained general acceptance in the particular field in which it belongs."

The *Frye* test is the expert's opinion based on what is *generally accepted* by the scientific community. It represents a compromise between the two positions of who is going to dominate, the law or science. It is a negotiated compromise on the very important issue of who is going to define science and who is going to define law. This may create a problem for scientists because the law is dictating what scientific evidence is. The problem for the law is if science dictates the validity of scientific evidence for courts, then science will run the legal system. The problem that science faces is who determines the boundaries of the scientific profession. Lawyers and judges are going to tell the expert what constitutes scientific evidence.

Daubert

Daubert v. Merrell Dow Pharmaceuticals, Inc. (92-102), 509 U.S. 579 (1993) was a United States Supreme Court case that involved a morning sickness pill (Bendectin) made by Merrell Dow Pharmaceuticals, which was alleged to cause birth defects in babies. The plaintiffs in *Daubert* were the parents of children born with the birth defects. The pregnant women that were taking this morning sickness medicine had babies with birth defects and claimed that Bendectin was the cause. This case changed the rules of the standards of evidence. *Daubert* is the leading U.S. Supreme Court case on the admissibility of expert witness's opinion as evidence in the federal courts.

The *Daubert* standard deals with the admissibility of expert witnesses' testimony during legal proceedings. The testimony of the expert must be both relevant and reliable. Within *Daubert*, relevancy means that the expert's theory or opinion has to fit the facts of the case. Even if the expert's theory is completely scientific, it has no relevance if it deals with a matter that was not an issue in the case. With the issue of reliability, the expert must derive his or her conclusions by a scientific method. In assessing reliability of scientific expert testimony, a "non-exclusive checklist" was created based on a scientific method. This list has become known as the *Daubert* Factors (FRE, Rule 702):

1. The theory or technique must be **falsifiable, refutable, and testable**.
2. The theory or technique has been subjected to **peer review and publication**.
3. **Known or potential error rate** of the theory or technique when applied.
4. The existence and maintenance of **standards** and controls of the theory or technique.
5. Whether the theory and technique is **generally accepted** by a relevant scientific community.

With *Daubert*, the issue of the evidence being based on reliability and relevancy has allowed judges to act as "gatekeepers" by deciding whether to allow expert evidence to be presented to a jury. This issue poses difficulties for scientists because when judges have the "gatekeeper" role, differing results between courtrooms may occur. What one courtroom may deem admissible, another may reject. The argument lies with reliability being based on facts, and relevancy being more of an issue of law and neither requires the same level of regard. The expert must review and consider the *Daubert* factors when preparing their opinions (Matson, Daou et al. 2004).

Other Important Cases

With *Daubert*, the Supreme Court created a test for the admissibility of scientific evidence to ensure that expert testimony was relevant and reliable. The *Daubert* standard was further developed by two additional Supreme Court rulings: first, *General Electric Co. v. Joiner*, 522 US 136 (1997) on the issue of the standard of review for admissibility decisions, and second, *Kumho Tire Co. v. Carmichael*, 526 US 137 (1999) on the issue of the admissibility standard for non-

scientific technical evidence. The three cases are known as the *Daubert* trilogy. In 2000, the Supreme Court amended the FRE, Rule 702 to include additional provisions. The provisions state that a witness may only testify if, "(1) the testimony is based upon sufficient facts or data, (2) the testimony is the product of reliable principles and methods, and (3) the witness has applied the principles and methods reliably to the facts of the case."

Conclusion

The important precedents that affect expert witnessing (*Frye, Daubert, Joiner, and Kumho*) have solidified the value of expert testimony in the judicial system (Matson, Daou et al. 2004). The expert witness needs to understand these precedents in order to become a successful and effective witness. However, the expert needs to keep in mind that the judicial system, laws, and precedents are subject to interpretation.

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Unit 7- Ethics

Objectives

At the end of this unit, the student will be able to:

- Define ethics
- Describe the ethical issues and problems experts face
- Describe unethical conduct

Introduction

Ethics is the general study of the “ideals regarding human behavior and the guiding principle” (Bowen 2010). According to Bowen, “ethics are not meant to dictate actions but to offer the tools and direction for dealing with situations.” Being an expert witness, one can be plagued with ethical problems and issues like unethical conduct of forensic witnesses and interprofessional relations (Feder and Houck 2008). The expert witness needs to know how to deal and react to these problems professionally and be able to overcome any stigmas of past unethical behaviors of scientists that have come before them.

To learn more information about ethics, please see our course “Ethics in Forensic Science.”

Ethical Issues as an Expert Witness

Law has defined the role of an expert as an impartial educator who helps to assist the trier of fact so that they can decide questions which may depend on specialized knowledge. Experts should provide a simple education, evaluation of evidence, and presentation of relevant findings in court. Experts must be willing to volunteer information that may be ethically, not legally, required. In addition, experts must point out the tentative nature of scientific findings and acknowledge contradictory evidence when it exists.

Experts may face a number of problems after agreeing to testify, including:

- Resisting attorneys who want testimony that supports only their position
- Evaluations that prove disadvantageous to the side which has retained them
- Being approached for a combination of advice, evaluations, and expert testimony
- Attorneys who waste time
- Inconvenienced or pressured by attorneys, agencies involved, the client or their family, the court schedule, travel, and accommodations
- Having their opinions distorted and their reputation impugned

- Having their testimony countered by an expert who is not on their level (but is still viewed by the court as an expert)
 - - Examples may be agents or police officers
 - Unethical to make negative comments about them
 - Many scientists will refuse to testify

Pressures faced by Experts

Experts can face many pressures uncommon to them, but common to the judicial environment. The pressures include, but are not limited to:

1. Preparation of reports containing minimal information in order to not "help" the other side during cross examination
2. Report of findings without interpretation assuming things can be clarified during testimony
3. Omitting a significant point from a report to trap the opposing lawyer during cross-examination
4. Expressing an opinion with greater certainty than the data would justify
5. Failure to report any weaknesses in a finding or opinion
6. Failure to differentiate between opinions based on experimental findings and opinions based on study, experience, and judgment
7. Assisting in preparation of cross-examination of a scientist called by the "other side"

Unethical Conduct

On rare occasions an expert witness will be found guilty of preparing fraudulent, false, or imagined scientific, technical, or professional research or analysis. Unfortunately, those cases are the ones that attract attention and make the profession look bad. There are many horror stories in forensic science about experts who falsify data to support either the prosecution or defense. There have been cases involving the use of false DNA, blood alcohol, or chemical substance testing that have led to wrongful convictions (Feder and Houck 2008).

The following are a list of unethical issues that center around ethical violation by the forensic expert witness (Feder and Houck 2008):

- Outright falsify data
- Investigation not performed

- Data altered
- Conditional or limited engagement (private experts)
- False testimony
- Intentionally ignoring available data
- Recanting prior contra-positions
- Assignments beyond competence
- Accepting unauthorized attorney influence
- Conclusion reached before research
- Conflicts of interest
- Fraudulent credentials
- Contingent fee (private experts)

Unethical conduct and/or mistakes can occur anywhere in forensic investigations, from the police to the forensic laboratory. Mistakes can occur while securing the scene, collecting the evidence, or processing the evidence. The mistakes can be accidental or intentional. Mistakes like improper chain of custody, improper labeling of evidence, or missing evidence at the scene can occur. While detrimental to the case, it can be seen as accidental due to factors of inexperience or neglect. Mistakes such as changing results, switching, planting, or tampering with evidence intentionally are the ones that could give forensic science a bad name in the public eye.

The following are examples of known cases of unethical conduct that occurred in forensic laboratories or with forensic scientists: (see pdfs in Appendix)

Fred Zane, serologist, West Virginia State Police Crime Lab, falsified evidence.
Houston Crime Lab, DNA lab errors.
New York State Police, faking fingerprints.
Sandra Anderson, dog handler, Michigan, planted evidence at crime scenes.

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Perspective in Expert Testimony Glossary

Attorney-client privilege: is a legal concept that protects certain communications between a client and his or her attorney and keeps those communications confidential.

Circumstantial evidence: All evidence of indirect nature; the process of decision by which court or jury may reason, from circumstances known or proved to establish by inference, the principle fact.

Compound question: a question that contains several components that might require different answers.

Cross-examination: The phase of the dispute resolution process in which opposing counsel asks questions of witnesses in order to test the truth, accuracy, or thoroughness of direct testimony.

Curriculum vitae: A complete listing of professional's career activities, including work history, publications, committees, and presentations

Deposition: Testimony given outside the presence of the trier of fact in the presence of a court reporter, counsel, and the parties, for the purpose of finding out what the expert knows, determining what sort of witness the expert will be, and locking the expert into a position

Direct examination: the questioning of a witness by the attorney who called him in a court of law. It is performed to provide evidence in support of facts that will satisfy one or more required elements of the attorney's argument.

Discovery: The processes used before a trial in order to uncover the facts of a case

Federal Rules of Evidence: The rules that govern the admissibility of evidence in the U.S. federal court system

Indictment: A paper by which a grand jury brings criminal charges against an individual or entity

Lay person: A fact witness; a non-expert witness

Standard error of the mean: The standard error of the mean estimates the standard deviation of the difference between the measured or estimated mean and the true mean.

Trier-of-fact: The judge or jury that determines the fact issues of the controversy in the dispute resolution process

Voir dire: The examination by which attorneys or the court are allowed to question jurors as to their fitness to serve as impartial triers of fact.

Work-product privilege: The work product of an attorney is not discoverable unless the court

determines that denial of discovery will unfairly prejudice the party seeking discovery in preparing that party's claim or defense or will result in an injustice.

Work-product: protects materials prepared in anticipation of litigation from discovery by opposing counsel. Work-product includes materials prepared by persons other than the attorney him/her self: The materials may have been prepared by anybody as long as they were prepared with an eye towards the realistic possibility of impending litigation. Additionally, it includes materials collected for the attorney such as interrogatories, signed statements, other information acquired for the prosecution or defense of a case, "memoranda, briefs, communications . . . other writings prepared by counsel for his/her own use in prosecuting the client's case . . . mental impressions, conclusions, opinions, or legal theories."

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Discussion Questions for Expert Testimony

Unit 1-Overview

1. Have you testified as an expert witness in court or watched an expert give testimony? What would you do the same? Or do differently?
2. Why is credibility important to maintain as an expert witness?
3. Do you feel there is a difference between technicians and scientists? Please explain your answer.

Unit 2-Attorney & Scientists

1. Describe your professional culture at your agency/laboratory/organization. Is it different from others that you have experienced?

Unit 3-Preparation

1. How have you prepared for being a witness or giving a presentation?
2. What, if any, training have you had in giving expert testimony?
3. Are visual aids beneficial when giving testimony? Give an example of one that you have created or seen that was beneficial to your testimony.
4. Why do appearances (dress, demeanor, etc.) matter in the courtroom?

Unit 4-Direct Examination

1. Why should you approach direct examination like a teacher or instructor?
2. Why are strong narratives important?

Unit 5-Cross-Examination

1. How is cross-examination like direct examination? How are they different?
2. Why are experts nervous about cross-examination? How could you avoid that nervousness?
3. Would you handle redirect any differently than direct examination?

Unit 6-Important Cases

1. Have you experienced or witnessed a *Daubert* hearing?
2. Does your state follow *Frye* or *Daubert* or both?

Unit 7 – Ethics

1. Why are ethics important?
2. Why do expert witnesses and attorneys appear to have a different set of ethics? Or are they the same?
3. What is the best way to deal with unethical behavior, either yours or others? How should a laboratory deal with unethical behavior of its employees?